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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Toru Hayashi

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JOHN S. PRATT, ESQ
KILPATRICK STOCKTON, LLP
1100 PEACHTREE STREET
ATLANTA, GA 30309

EXAMINER

THANGAVELU, KANDASAMY

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/049,793

Applicant(s)

HAYASHI ET AL.

Examiner

Kandasamy Thangavelu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-17,19 and 20 is/are rejected.
- 7) ☒ Claim(s) 8 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/17/05 and 3/24/0</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-20 of the application have been examined.

Information Disclosure Statement

2. Acknowledgment is made of the information disclosure statements filed on February 27, 2005 and March 14, 2005 together with lists of the patents and papers. The patents and papers have been considered.

Drawings

3. The drawings submitted on February 23, 2002 are accepted.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 1, 2, 4, 5, 11, 12, 14 and 15 are rejected under 35 U.S.C. § 102(e) as being anticipated by **Hubrecht et al.** (U.S. Patent Application 2003/0117402).

5.1 **Hubrecht et al.** teaches Systems and methods for simulating frames of complex virtual environments. Specifically, as per claim 1, **Hubrecht et al.** teaches An information delivering system for delivering information through a communication network constructed by interconnecting communication lines (Fig. 2; Page 6, Para 0077 and Para 0078); the information delivering system comprising:

an information delivering server which is connected to the communication network (Fig. 2; Page 6, Para 0077 and Para 0078; Page 4, Para 0061; Page 6, Para 0080, Para 0081 and Para 0083; Page 7, Para 0085 and Para 0086) and configured to deliver three-dimensional content provided for presentation of the information (Figs. 25A- 28B; Page 6, Para 0076; Abstract, L1-5; Page 1, Para 0005 and Para 0006); and

a client terminal which is configured to receive and display units of information through the communication network (Page 6, Para 0078, Para 0080, Para 0081 and Para 0083; Page 7, Para 0085 and Para 0086);

wherein the three-dimensional content is generated by creating a three-dimensional virtual space as projected onto a plane (Figs. 18A, 18B and 18C; Page 19, Para 0184 and Para 0185) and arranging an object indicative of the information within the three-dimensional space (Figs. 25A- 28B).

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Per Claim 2: **Hubrecht et al.** teaches that the object(s) is provided in order that the position thereof is associated with the content of the information (Figs. 25A- 28B; Page 7, Para 0086 and Para 0091).

Per Claim 4: **Hubrecht et al.** teaches that the information of the objects) as arranged in a certain direction to provide a hierarchical representation corresponding to the positions of the object(s) (Page 8, Para 0096 and Para 0098).

Per Claim 5: **Hubrecht et al.** teaches a content generation means which is configured to generate the three dimensional content (Page 6, Para 0078, Para 0080 and Para 0081; Page 7, Para 0085); and

a content transfer means which is configured to store the three-dimensional content as generated in the information delivering server (Page 6, Para 0080 and Para 0083; Page 7, Para 0086).

5.2 As per Claims 11, 12, 14 and 15, these are rejected based on the same reasoning as Claims 1, 2, 4 and 5, supra. Claims 11, 12, 14 and 15 are method claims reciting the same limitations as Claims 1, 2, 4 and 5, as taught throughout by **Hubrecht et al.**

Claim Rejections - 35 USC § 103

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hubrecht et al.** (U.S. Patent Application 2003/0117402) in view of **Oka** (U.S. Patent 5,912,671).

8.1 As per claim 3, **Hubrecht et al.** teaches the information delivering system of claim 1. **Hubrecht et al.** does not expressly teach that the object(s) is a polyhedron each of whose facets is used to display a unit of the information in order that the respective units of the information are shown by turning the polyhedron. **Oka** teaches that the object(s) is a polyhedron each of whose facets is used to display a unit of the information in order that the respective units of the information are shown by turning the polyhedron (CL1, L26-41). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the information

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delivering system of **Hubrecht et al.** with the information delivering system of **Oka** that included the object(s) being a polyhedron each of whose facets was used to display a unit of the information in order that the respective units of the information were shown by turning the polyhedron because that would allow storing a plurality three-dimensional images depicting the character viewed from different directions to be stored on different face of the polyhedron and displayed (C11, L26-32).

8.2 As per Claim 13, it is rejected based on the same reasoning as Claim 3, supra. Claim 13 is a method claims reciting the same limitations as Claim 3, as taught throughout by **Hubrecht et al.** and **Oka**.

9. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hubrecht et al.** (U.S. Patent Application 2003/0117402) in view of **Kamimura et al.** (U.S. Patent Application 2001/0051535), and further in view of **O'Rourke et al.** (U.S. Patent Application 2002/0138607).

9.1 As per claim 6, **Hubrecht et al.** teaches the information delivering system of claim 1. **Hubrecht et al.** teaches a property information storage device which is configured to store the property information of the three-dimensional content (Page 1, Para 0005);

a property information management means which is configured to control the management of the property information stored in the property information storage device (Page 1, Para 0005); and

a content providing means which is configured to provide the three-dimensional content for customers (Page 6, Para 0080, Para 0083; Page 7, Para 0085 and Para 0086).

Hubrecht et al. does not expressly teach a skeleton storage device which is configured to store the content of invariable components among the three-dimensional content; a skeleton registration means which is configured to store the content of invariable components in the skeleton storage device; and a content providing means which is configured to provide the three-dimensional content for customers with reference to the skeleton storage device.

Kamimura et al. teaches a skeleton storage device which is configured to store the content of invariable components among the three-dimensional content; a skeleton registration means which is configured to store the content of invariable components in the skeleton storage device; and a content providing means which is configured to provide the three-dimensional content for customers with reference to the skeleton storage device (Page 4, Para 0076). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the information delivering system of **Hubrecht et al.** with the information delivering system of **Kamimura et al.** that included a skeleton storage device which was configured to store the content of invariable components among the three-dimensional content; a skeleton registration means which was configured to store the content of invariable components in the skeleton storage device; and a content providing means which was configured to provide the three-dimensional content for customers with reference to the skeleton storage device because that would allow motion of a person to be expressed more realistically by manipulating the control points and construction points in the muscle or skeleton (Page 4, Para 0076).

Hubrecht et al. does not expressly teach a parameter storage device which is configured to store parameters which are externally designated; a parameter setting means which is configured to setup the parameters; a parameter registration means which is configured to register the parameters in the parameter storage device; and a content providing means which is configured to provide the three-dimensional content for customers with reference to the parameter storage device. **O'Rourke et al.** teaches a parameter storage device which is configured to store parameters which are externally designated; a parameter setting means which is configured to setup the parameters; a parameter registration means which is configured to register the parameters in the parameter storage device; and a content providing means which is configured to provide the three-dimensional content for customers with reference to the parameter storage device (Page 7, Para 0107 to Para 0115; Page 8, Para 0131). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the information delivering system of **Hubrecht et al.** with the information delivering system of **O'Rourke et al.** that included a parameter storage device which was configured to store parameters which were externally designated; a parameter setting means which was configured to setup the parameters; a parameter registration means which was configured to register the parameters in the parameter storage device; and a content providing means which was configured to provide the three-dimensional content for customers with reference to the parameter storage device because that would allow a user to create and configure image frames within 3-D multi-user environment using the various parameters to define the images in the frame (Page 7, Para 0107 to Para 0115; Page 8, Para 0131).

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9.2 As per Claim 16, it is rejected based on the same reasoning as Claim 6, supra. Claim 16 is a method claims reciting the same limitations as Claim 6, as taught throughout by **Hubrecht et al.**, **Kamimura et al.** and **O'Rourke et al.**

10. Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hubrecht et al.** (U.S. Patent Application 2003/0117402) in view of **Lengyel** (U.S. Patent 6,614,428).

10.1 As per claim 7, **Hubrecht et al.** teaches the information delivering system of claim 1. **Hubrecht et al.** does not expressly teach that the client terminal further comprises an interpolation means and wherein, when the information delivering server transmits three-dimensional content including a start position and an end position of a moving object and a time as designated for moving from the start position to the end position, the interpolation means perform interpolation of images of the moving object by defining a plurality of frames with a predetermined time interval between the start position and the end position and dividing the distance between the start position and the end position by the number of the frames during the reproduction of the three-dimensional content. **Lengyel** teaches that the client terminal further comprises an interpolation means (CL5, L38-48) and wherein, when the information delivering server transmits three-dimensional content including a start position and an end position of a moving object and a time as designated for moving from the start position to the end position (CL23, L48-50; Fig. 13, Item 549; CL1, L45-50; CL2, L50-61; CL3, L26-29), the interpolation means perform interpolation of images of the moving object by defining a plurality of frames

with a predetermined time interval between the start position and the end position and dividing the distance between the start position and the end position by the number of the frames during the reproduction of the three-dimensional content (CL2, L50-61; CL5, L9-10; CL5, L18-28; CL5, L38-48). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the information delivering system of **Hubrecht et al.** with the information delivering system of **Lengyel** that included the client terminal further comprised an interpolation means and wherein, when the information delivering server transmitted three-dimensional content including a start position and an end position of a moving object and a time as designated for moving from the start position to the end position, the interpolation means performed interpolation of images of the moving object by defining a plurality of frames with a predetermined time interval between the start position and the end position and dividing the distance between the start position and the end position by the number of the frames during the reproduction of the three-dimensional content because time and geometry interpolation components are typically implemented in graphics rendering hardware in the clients (CL5, L47-48); it would allow reducing the transmission bandwidth between the server and the clients on the network (CL3, L15-16); and in the graphics rendering process the 3D model is rendered into an output image at discrete times and most likely at a periodic rate such as the frame rate (CL5, L22-24).

10.2 As per Claim 17, it is rejected based on the same reasoning as Claim 7, supra. Claim 17 is a method claims reciting the same limitations as Claim 7, as taught throughout by **Hubrecht et al.** and **Lengyel**.

11. Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hubrecht et al.** (U.S. Patent Application 2003/0117402) in view of **Matsuda** (U.S. Patent Application 2001/0055039).

11.1 As per claim 3, **Hubrecht et al.** teaches the information delivering system of claim 1. **Hubrecht et al.** does not expressly teach that the client terminal further comprises an external file combination means which is configured to combine an external file as stored in the client terminal when the information delivering server transmits three-dimensional content including a request for a linkage to the external file. **Matsuda** teaches that the client terminal further comprises an external file combination means which is configured to combine an external file as stored in the client terminal when the information delivering server transmits three-dimensional content including a request for a linkage to the external file (Fig. 1, Fig. 2, Fig. 23; Page 1, Para 0001, Para 0005, Para 0014; Abstract). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the information delivering system of **Hubrecht et al.** with the information delivering system of **Matsuda** that included the client terminal further comprising an external file combination means which was configured to combine an external file as stored in the client terminal when the information delivering server transmitted three-dimensional content including a request for a linkage to the external file because three-dimensional graphics data can be stored in a server and transferred on demand by a client terminal and displayed using a browser on the client terminal (Page 1, Para 0005); and

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some of the files may be stored on the hard disc of a client and read from a selected file and displayed by the client at its terminal (Page 1, Para 0014).

11.2 As per Claim 19, it is rejected based on the same reasoning as Claim9, supra. Claim 19 is a method claims reciting the same limitations as Claim 9, as taught throughout by **Hubrecht et al.** and **Matsuda**.

12. Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hubrecht et al.** (U.S. Patent Application 2003/0117402) in view of **Nikolskiy at al.** (U.S. Patent Application 2002/0055800).

12.1 As per claim 3, **Hubrecht et al.** teaches the information delivering system of claim 1. **Hubrecht et al.** does not expressly teach that three-dimensional content is composed of a plurality of project files and wherein the information delivering server further comprises a download management means which is configured to transmit the project file corresponding to a scene as requested from the client terminal for reproducing the scene. **Nikolskiy at al.** teaches that three-dimensional content is composed of a plurality of project files and wherein the information delivering server further comprises a download management means which is configured to transmit the project file corresponding to a scene as requested from the client terminal for reproducing the scene (Page 1, Para 0011 and Para 0017; Page 7, Para 0099). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the information delivering system of **Hubrecht et al.** with the information delivering

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system of **Nikolskiy at al.** that included three-dimensional content composed of a plurality of project files and wherein the information delivering server further comprised a download management means which was configured to transmit the project file corresponding to a scene as requested from the client terminal for reproducing the scene because that would allow generating a computer model of a patient's teeth to be generated at a server; communicating the treatment information to a client workstation in a computer automated treatment plan and system; download the treatment pan at a remote workstation to view the patient's treatment plan and comment on it; the viewer would download the data files from the server and present the treatment plan graphically to a clinician (Page 1, Para 0011 and Para 0017; Page 7, Para 0099).

11.2 As per Claim 20, it is rejected based on the same reasoning as Claim10, supra. Claim 20 is a method claims reciting the same limitations as Claim 10, as taught throughout by **Hubrecht et al.** and **Nikolskiy at al.**

Allowable Subject Matter

12. Claims 8 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 571-272-3717. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard, can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'K. Thangavelu', with a stylized flourish at the end.

K. Thangavelu
Art Unit 2123
December 9, 2005